

He also set up an educational department in the museum and did much to develop its work with children.

Bumpus's success in reshaping the American Museum of Natural History along progressive lines had a disappointing end for him personally, but not before he had helped to organize the American Association of Museums in 1906 and served as its first president. Jesup's death in 1908 placed power at the museum in the hands of some trustees and curators who resented the changes Bumpus had fostered. They forced his resignation in 1910 and he left the museum field for a number of years. The University of Wisconsin called him to straighten out its business affairs, and he served as president of Tufts College from 1915 until his retirement in 1919. He was productively busy at his Duxbury home when Chauncey Hamlin enlisted his help for park museums.

When Ansel Hall reported to Duxbury in mid-July 1924, Bumpus gave him directions that must have come as a surprise. Instead of plunging into plans for the Yosemite Museum, Hall was to start a branch museum in the form of a lookout station at Glacier Point.<sup>10</sup> Whatever prompted this preliminary assignment, it gave quick, concrete evidence of progress, tested the abilities of the project field staff, and allowed time for a more deliberate approach to the main objective. At the same time, the lookout represented a singularly creative concept. The little stone structure that shortly took shape constituted a magnet drawing visitors to a precise spot where the evidence of the geologic history of Yosemite Valley spread out before them in an unmatched panorama. It provided one trial answer to a question typical of Bumpus's thought: "How shall the magnificent specimens in these roofless museums of nature be adequately labelled?"<sup>11</sup>

Hall's first step was to hire Herbert Maier, the architect who had drawn preliminary plans for Hall's proposed new museum two years before. The two men reached Yosemite in mid-August and had the lookout structure essentially completed by September 25. Bumpus traveled to California in September and spent two busy weeks on the job. Hall drove him to the park on the 11th, when park naturalist Carl Russell probably met him for the first time. Bumpus inspected the Glacier Point station, then used half the next day with Hall and Maier to sketch fresh plans for the new Yosemite Museum. Maier must have worked up the ideas with a swift, sure hand, for the architectural concepts were approved four days later.<sup>12</sup>

As soon as Bumpus left, Maier produced a preliminary set of scale drawings that went out for bid on October 4. Bids were opened on October 9 and a contract let on the 25th. Russell and landscape engineer Thomas C. Vint meanwhile staked the museum site. Maier and Hall completed the construction drawings and specifications by October 18, and the contractor started work promptly. Ansel Hall laid the cornerstone on November 16 in conjunction with the dedication of the new park headquarters complex.

Pouring concrete began on December 16, and the contractor finished construction by April 1, 1925. The museum opened to the public on May 29, 1926.<sup>13</sup>

By the beginning of the 1927 season, after the museum had served the first 150,000 of its visitors, Russell could describe it in full operation. Maier had designed an attractive but unobtrusive building. He made the ground floor a fire-resistant concrete box within an exterior of rough granite masonry. It housed the museum collections, most of the exhibits, and the library. Visitors moved logically from the lobby information center through a series of modest exhibit rooms. The first of these interpreted the park's geology with several relief models that illustrated progressive changes and directed people to where they might see the evidence. Displays of rock specimens, some available for handling, supplemented the models. The next two rooms addressed the park's natural history. In one of them habitat groups defined the five life zones visitors would encounter. A room on the life of the Yosemite Indians, embellished by the basket collection, came next. The last room, in which visitors tended to linger, presented a brief narrative history of the park. This led them to the exit onto a covered porch containing cut wildflower displays, a few cages of live lower vertebrates, and an old stagecoach. Adjacent were outdoor exhibits of Indian material including a large mortar stone in place. Visitors who wished could reenter the lobby and go upstairs to study additional exhibits of park trees and flowers.

The upper floor was of frame construction covered with shakes. Most of it contained work space. The park naturalist had his office there, as did the nature guides. There was a well-equipped exhibit preparation shop, a print shop for *Yosemite Nature Notes*, and a photographic darkroom. A caretaker had quarters on this floor. One room served as the laboratory classroom for the Yosemite Field School of Natural History and contained the extra flower exhibits. Another was a clubroom for the Yosemite Natural History Association and a meeting place for several organizations in the park.

The new Yosemite Museum was less an outgrowth of its predecessor in the old Jorgensen studio than the conscious prototype of proper headquarters museums for the national parks. It set policies and standards in size, scope, location, interpretive function, and exhibit quality. A park museum should be only large enough to tell the basic park story. As Bumpus put it, "To lead these people away from direct contact with nature, to beguile them into a building where they are surrounded by artifacts, and to subject them to the spell of the professional lecturer, is contrary to the spirit of this enterprise."<sup>14</sup> The museum's scope was determined by the knowledge visitors needed to enjoy the park; in other words, the museum should explain those salient features the park was established to preserve. It

followed that park museums should not start out with collections to be exhibited, but with ideas to interpret through exhibits. Bumpus noted that this inverted, but did not upset, normal museum objectives.<sup>15</sup> The headquarters museum should be placed where visitors would readily find it, close to the primary route of travel and near a natural concentration point. It required facilities to make it an effective base for the interpretive staff and a logical gathering place and starting point for interpretive activities.

The planning and preparation of exhibits are less well documented. Bumpus, who knew how and when to delegate authority, probably left much of the case design and installation to Maier and Russell, who had real aptitude for exhibit work. He did have some of the birds and small mammals for the new displays mounted at the Buffalo Museum of Science, where Joseph Santens was among the best taxidermists available anywhere. Egmont Rett, preparator at the Santa Barbara Museum of Natural History, did the five life zone groups and Chauncey Hamlin and his wife, who inspected the new museum and the Glacier Point station in May 1927, gave \$100 to complete the last of these. Taxidermist Gus Nordquist of Oakland donated a coyote and skunk habitat group. Russell labored long and hard on the exhibit labels, which marked a particular improvement over the older Yosemite Museum.<sup>16</sup>

When Russell replaced Ansel Hall as Yosemite park naturalist in September 1923, he took over responsibility for museum work in the park. His preparation for curatorial duties involved more than what he had learned that summer as a ranger-naturalist under Hall. A native of Wisconsin, he had graduated from Ripon College in 1915 with a major in biology, then earned an M.A. in cytology at the University of Michigan in 1917. At Michigan he also worked on summer expeditions of the university's natural history museum under Alexander V. Ruthven, its director and one of the country's leading museologists, and helped move collections into the new museum building. After military service overseas as a lieutenant in 1918-19 the Army assigned him to special studies at the Sorbonne and to four months at the Museum of Natural History in Paris where he worked on European herpetology. Back home he found a job as a high school biology teacher in Reno, Nevada. In his spare time he studied the distribution of Nevada mammals and played an active part in the Nevada State Fish and Game Protective League. His ecological research involved correspondence with Joseph Grinnell at the Museum of Vertebrate Zoology in Berkeley and a trip to the Field Museum of Natural History in Chicago to study the records on Nevada specimens. He continued spare-time ecological studies while a Park Service naturalist and received a Ph.D. from the University of Michigan in 1931.<sup>17</sup>



*Carl P. Russell.* The Park Service's first staff museum expert.

During the winter of 1923-24 Russell did not neglect his curatorial functions. He set his wife to typing a card index of accessions. When a ranger brought him four skunks, he prepared one as a museum specimen and stretched and sold the other skins to pay for printing posters announcing the 1924 nature guide program. He obtained carbon disulfide and fumigated the museum collections. He went to the California Academy of Sciences and took instruction under Frank Tose, its chief taxidermist, to become familiar with the latest methods of natural history exhibit preparation. On the strength of this he prepared a small habitat group of chickarees for the museum in the old Jorgensen studio, and probably a second group of nesting white-headed woodpeckers.<sup>18</sup> The new Yosemite Museum, the Glacier Point station, and a second branch museum in the Sierra Club Lodge at Tuolumne Meadows remained under his care as park naturalist until 1929, when he was promoted to the new position of field naturalist with broader museum responsibilities.

Early in 1928 Bumpus visited Yosemite "to ascertain to what extent the construction of the Yosemite Museum and its substation at Glacier Point has fulfilled expectations; how it is being operated by the National Park Service; to observe the reaction of the . . . public to the efforts at popular education therein and thereabouts, and particularly to test the instructional value of the exhibited material, the plan of installation, the style and content of the labels . . . ." <sup>19</sup> What he saw evidently pleased him. His report to the Laura Spelman Rockefeller Memorial included comments on the history room, which he found of "high educational value." This room had entailed extra work on Russell's part because he had to develop the basic story as well as devise exhibits to interpret it. The necessity fueled an interest in history that carried over to his subsequent assignments.

### **Yavapai and Bear Mountain**

With the Yosemite Museum nearing completion, the American Association of Museums obtained a second pair of grants from the Laura Spelman Rockefeller Memorial. One provided \$2,500 for the continuing work of the Committee on Outdoor Education and the other \$20,000 to build two new park museums on a smaller scale than the one at Yosemite. The committee proposed to extend its experiment in two directions. It would develop more fully the concept embodied in the Glacier Point lookout. It would also explore the role of museums in state parks. Herbert Maier, who became the AAM executive agent when Ansel Hall took up his duties as NPS chief naturalist in June 1925, transferred from Yosemite to the association's Washington headquarters in August 1926 to begin work on these new projects.<sup>20</sup> He promptly began architectural plans for an observation station-museum at Yavapai Point in Grand Canyon National Park and a trailside museum at Bear Mountain in the Palisades Interstate Park.

Bear Mountain offered a large number of potential museum visitors different in many respects from the people traveling to the western national parks. Excursion steamers brought thousands of New Yorkers up the Hudson River for outings there. The crowds included many children and young people who lived and worked in the city. Most were out of touch with a natural environment and nearly all were in holiday mood.

Two committee members had special interest in the Bear Mountain proposal. William Welch was general manager of Palisades Interstate Park and Frank Lutz, curator of insects at the American Museum of Natural History, had set up a field station within the park not far from Bear Mountain. In 1925 Lutz developed a footpath there along which he labeled things of interest. He called it a nature trail, and it proved popular with visitors. Another development in the park also helped to set the stage. The five New York City boroughs had their Boy Scout camps around a park



*Herbert Maier.* Park museum architect, in Yosemite with Betty (Mrs. Carl P.) Russell.

lake. There about 1923 Benjamin T. B. Hyde established a camp museum—an informal, imaginative affair of temporary displays involving the young campers in nature study projects. Under the leadership of "Uncle Bennie" the idea spread to most of the group camps in the park and alerted park management to the possibilities of a museum for day visitors.<sup>21</sup>

From these ingredients Bumpus and his committee colleagues made plans for a nature trail and a small museum. The resulting trail opened invitingly to visitors as they started up the hill from the boat docks. Eventually it led into and through the simple stone-walled building Maier designed—the prototype of trailside museums. The exhibits inside continued the theme of the trail. In their informality and spontaneity the displays resembled those of the camp museums, but they also reflected the richer resources on which they drew. When the AAM had erected the building, the park asked the American Museum of Natural History to operate the integrated museum and trail. The Bear Mountain Experiment therefore continued as a project of the American Museum's Department of Education, headed by the man Bumpus had selected as its first curator almost twenty years before. He in turn assigned continued development and operation of the trailside museum to William H. Carr.<sup>22</sup>

While ideas were jelling on the Hudson, the committee's project at Grand Canyon took shape. The complex story exposed in the canyon walls challenged the committee to devise museum methods that would interpret

it. Bumpus deferred to another member of the committee in this case, for he was not a geologist and needed to give his attention to the Bear Mountain project. He also had a concurrent and demanding assignment peripheral to the committee's work: Chauncey Hamlin persuaded him in 1925 to serve as consulting director for the new Buffalo Museum of Science. So John Campbell Merriam, a paleontologist accustomed to coping with geological concepts and as concerned as Bumpus with the effective interpretation of science to the public, put his mind to the Grand Canyon problem.

An Iowan by birth, Merriam joined the faculty of the University of California in 1894. He taught at Berkeley until 1920, holding the professorship of paleontology from 1912 and ending his academic career as dean of faculties. In 1919 he was chairman of the National Research Council. The remainder of his life he served the Carnegie Institution of Washington, as president 1920-37 and then as president emeritus, supporting and guiding major research programs in many fields.

At Grand Canyon Merriam produced what Ronald F. Lee a generation later held up as a classic example of interpretive planning, a standard against which to measure future Park Service efforts.<sup>23</sup> He started by defining the park's educational objectives. "The educational program of the park must arrange itself around the elements of principal interest," he felt; "it will involve a study of the means for giving the best opportunity to see and to understand these most significant features." His plan next identified the aspects of Grand Canyon that met this criterion, including the depth and magnitude of the canyon, the power of the river, the nature of the plateau into which it had cut, and the gap in time at the top of the Archaean inner gorge. It then became necessary to find a spot where visitors could see and at least begin to understand these prime aspects.

Yavapai Point won general agreement as the best location. There Maier designed an observation station very carefully sited on the canyon rim. Its proposed functions called for a larger structure than at Glacier Point. Its parapet was to hold 15 binoculars or telescopes, each fixed to give the viewer a closer look at a key feature. Explanatory labels and specimens along the parapet would integrate and interpret the concepts of time and change illustrated by the selected details of the landscape. As Merriam later expressed it, "All that we are concerned with is in turning your attention to the real things outside . . . ." <sup>24</sup>

Back from the parapet but still with a sweeping view of the canyon, an open space allowed visitors to sit while listening to a fuller interpretation of the scene. This setting dovetailed with Merriam's thinking on the sensitive role of the interpretive staff. "It is difficult for one not saturated with knowledge and with interest in the miracle of the place to present a statement measuring up to the opportunity evident in the face of nature,"



*John C. Merriam.* While president of the Carnegie Institution of Washington he put his mind to proper interpretation of the national parks. (Courtesy Carnegie Institution of Washington.)

he wrote. But saturation with knowledge would not be enough: "It will always be difficult to satisfy any intelligent person with a purely scientific statement regarding a picture which clearly requires philosophical interpretation, and which at the same time demands the highest type of spiritual appreciation."<sup>25</sup> In fact, a succession of park naturalists found this a place where they could most nearly achieve such standards in their interpretive talks. A fairly spacious exhibit alcove behind it rounded out the Yavapai station.

Merriam did more than conceptualize the Yavapai Museum. He gave close attention to every detail. To ensure that the specimens used precisely and effectively illustrated the ideas intended, he helped collect them. He also enlisted the aid of other scientists who had con-

ducted important research in the canyon in collecting specimens and in checking each statement of fact or scientific theory to be presented to visitors at Yavapai. When funds from the Rockefeller grant ran out, he personally paid for one of the large windows and persuaded the Carnegie Corporation of New York to grant \$3,000 to finish the project. He organized a Grand Canyon Committee of the National Academy of Sciences to facilitate the work in various ways.<sup>26</sup>

Merriam's active involvement at Grand Canyon continued at least until mid-1935. By then he had applied the lessons of Yavapai to another observation station, the Sinnott Memorial at Crater Lake National Park. This new museum, funded by a congressional appropriation in 1930, indicated that the demonstration projects of the AAM Committee on Outdoor Education were beginning to achieve one of their principal objectives: persuading Congress to build and support museums in the national parks.

Merriam's influence at Yavapai had another dimension. He made good use of the park naturalist, Edwin McKee, in carrying out the work on site. In doing so he undoubtedly motivated McKee to become an outstanding geologist and one of the most profound students of the canyon. McKee in

turn set a pattern for his successor of responsible scientific collecting to study and document the park's resources. By the mid-1950s Grand Canyon had built up a collection so significant that it constituted the decisive justification for the government to erect a larger museum designed to assure its protection and facilitate its use. Merriam's reliance on McKee to complete and install exhibits at Yavapai carried with it the assumption that exhibits in the parks should meet truly high standards. Characteristic was McKee's request that Erwin J. Raisz of Columbia University redo charts attempted by less skilled hands.<sup>27</sup>

### **The Yellowstone Museums**

With the Yavapai Museum as well as Bear Mountain underway, the AAM Committee on Outdoor Education once again turned to the Laura Spelman Rockefeller Memorial. Having created model park museums of three different kinds, the committee was ready to develop its concepts further. In the 1926 proposal it had asked for \$400,000 to include museums for Yellowstone and other national parks. Although the foundation allowed only a fraction of this request, in 1928 it made a third pair of grants. The committee received \$6,000 for its operations and \$112,000 for projected work in Yellowstone.

Yellowstone's size and diversity presented a new set of conditions. The park has a rich variety of prime features calling for interpretation. Visitors can adequately experience only a fraction of them at any one place. People therefore tend to congregate at several points of interest, miles apart and each distinct in character. The situation required more decentralization than the developments at Yosemite had provided.

This did not become evident to Bumpus until he studied the problem on the ground. In April 1928 he was still giving precedence to a headquarters museum. "I am hoping," he wrote Russell, "that Messrs. Albright, Vint, Maier and myself will promptly agree upon a location and the character of the building at Mammoth, which will be our first piece of constructive work." After he and Maier reached Yellowstone in May, they decided instead to start on a branch museum at the park's best known focal point—Old Faithful geyser. It took Maier only about four months to design and construct a trailside museum building there. When Russell arrived in October to start planning exhibits for it, he "found the new museum to be a wonder."<sup>28</sup>

Meanwhile, Bumpus continued to evolve his interpretive concepts for Yellowstone. He selected two more key locations for small museum development along the Yellowstone loop road. One at Madison Junction overlooked the 1870 campsite of the Washburn-Doane-Langford Expedition where the "national park idea" traditionally had its birth. An inspiring spot

at which to tell about Yellowstone history, it provided a logical first stop for visitors coming in the park's west entrance. The Norris Geyser Basin, differing significantly in aspect and action from the Old Faithful area, provided the third museum site. Sensing a need to point out and explain features that did not require such extensive interpretation, Bumpus also conceived of isolated exhibits placed beside the road. Each would need a minimal shelter and space for motorists to pull out of traffic for a brief stop. Perhaps thinking of the wayside crucifixes found in some European countries, he called these single exhibit shelters "shrines." He expressed the problem as a need to "label Yellowstone" for the enlightenment of visitors. These novel proposals required selling, not least to the park naturalists on whom he depended to put them into effect.<sup>29</sup>

Before turning to the execution of Bumpus's plans it is worth following the progression of his ideas a little further. Like Merriam at Grand Canyon he faced the fact that the park, created to preserve certain salient features, held innumerable other things of potential interest to visitors. His focal point museums located at the sites of prime significance would provide "the exclamation and interrogation points of an informational recital." But, he asked rhetorically, "Should a museum at Old Faithful for example confine itself strictly to geyser activities, or should it broaden its function and embrace a wider range of subjects appropriate to the general locality?" His conclusion: "The wider the local range, the better."<sup>30</sup> This judgment legitimized exhibits on Yellowstone birds and other non-geothermal aspects of the park at Old Faithful. It recognized, no doubt, that similar dilutions of emphasis existed in the history room of the Yosemite Museum and were being included in the exhibits at Yavapai. It expressed a teacher's concern for making good use of an educational opportunity.

Perhaps Bumpus realized that such inclusions had a less desirable side effect. They made it easier to let considerations of popular interest outweigh those of significance in determining the content of park museums, a continual temptation that park interpretive programs encounter. Against this danger he concurred in the strong recommendations of the Committee on Study of Educational Problems in National Parks: "The distinctive and essential characters of National Parks lie in the inspirational influence and educational value of the exceptional natural features which constitute the reason for existence of these parks. . . . The educational program in National Parks should relate itself primarily to the essential features. . . . Educational work should be reduced to the lowest limit that will give the visitor opportunity to discover the things of major interest, and to inform himself fully concerning them if he so desires."<sup>31</sup> Official museum policy has adhered to the primacy of significance, but instances of divergent practice have created curatorial problems and compromised interpretive standards.

When Bumpus referred to a museum as part of an informational recital, he had clearly in mind another aspect fundamental to a proper park museum. It does not stand alone as an independent entity but forms part of an integrated interpretive program. Bumpus at Yellowstone was as concerned as Merriam at Grand Canyon with the whole spectrum of media, activities, and services that could be coordinated into the most effective interpretation of the park features possible. He worked with and through the park interpreters as vital elements in the demonstration project.

To carry out museum developments at Yellowstone Bumpus relied principally on the team of Maier and Russell he had broken in at Yosemite. Maier, as AAM executive agent and architect, came to the job with broadened and deepened experience. He had the Yavapai and Bear Mountain projects behind him and was acquiring a firsthand comprehension of exhibit design, preparation, and installation. Bumpus, in his role as consulting director of the new Buffalo Museum of Science, engaged Maier during the winter months to build a series of splendid miniature models showing reconstructions of outstanding archeological sites peopled with tiny figures for Buffalo's Hall of Civilization. In this assignment he learned standards as well as methods. Under the guidance of Bumpus he worked with recognized specialists including a leading anthropologist, the head of a university art department, and a successful sculptor.<sup>32</sup>

Russell also received further training to hone his museological skills for the work at Yellowstone. As Bumpus wished, the Park Service detailed him to the Yellowstone project when the 1928 summer season at Yosemite ended. He spent most of October planning exhibits for the Old Faithful Museum. His diary for the month shows him reading industriously to get a grasp of the subject matter, groping for exhibit ideas, consulting long hours with Maier and Superintendent Albright, drafting case layouts with Yellowstone's new park naturalist, Dorr Yeager, and dipping into other curatorial activities at the park. Maier was winding up his work on the new museum building before returning to his exhibit preparation assignment for the Buffalo Museum of Science. Yeager, a former ranger-naturalist on Russell's staff at Yosemite, was fresh from his first summer with Yellowstone's problem-plagued interpretive program. Having allowed so much of a start on the Old Faithful exhibit plan, Bumpus shifted the emphasis to Russell's education.

For this purpose he used a technique that had worked well before. He summoned his trainee to Boston, where over 13 days he took or sent him to more than a dozen museums in the area. Together they analyzed the good and bad points of numerous exhibits. The study of current exhibit practice, which continued throughout his training trip, gave Russell a solid basis for quality standards as well as many practical ideas on exhibit design and technique. Bumpus also saw to it that he met people who were creative

leaders in the museum profession or scholars who might help assure accuracy and depth in his exhibit plans.<sup>33</sup>

Then followed twenty days in New York, where the American Museum of Natural History absorbed most of Russell's time. He found it "such a mine as I had not visualized" while gathering "a wealth of ideas and plenty of notes." He studied the exhibits systematically floor by floor, sometimes in company with Bumpus. The museum also let him check through the duplicates in the library and select many useful publications for the park libraries at Yosemite and Yellowstone. He also visited ten other New York museums where he observed additional examples of museum practice and made valuable contacts. At the Museum of the American Indian he became acquainted with one of the curators, Louis Schellbach, who later played a significant role in national park museums. Other New York contacts included at least three members of the new Committee on Study of Educational Problems in National Parks and staff of the Laura Spelman Rockefeller Memorial.<sup>34</sup>

Early in December Bumpus sent Russell on to Philadelphia, Washington, and Pittsburgh. A day in Philadelphia gave him time to go through three museums and meet Charles Toothaker, the progressive director of the Commercial Museum. His six days in Washington included study visits to the National Museum and three others. In Pittsburgh the Carnegie Museum of Natural History provided not only fine exhibits to study but also the opportunity to meet and talk with the museum's outstanding director, Andrey Avinoff.<sup>35</sup>

There followed a six-day assignment in Buffalo at the as-yet-unopened Museum of Science. What he found there made a strong impression. He did some practical work with the exhibit planners that broadened his experience in case layout and label composition but shied away from participation in actual installations. Chauncey Hamlin urged him to remain for a month to help with the exhibits, but his other commitments made this impossible. He did get to know another museologist of high caliber, Assistant Director Carlos Cummings, who would later train other curators for national park museums. Bumpus, Maier, and Russell conferred there on Yellowstone exhibit plans. "At Dr. Bumpus's behest we made many, and radical changes," Russell recorded.<sup>36</sup>

From Buffalo he proceeded on the last lap of the study tour. A stopover at Cleveland allowed him to see three museums before going on Christmas leave. After that he spent a Sunday visiting the Milwaukee Public Museum before meeting Dorr Yeager in Chicago. Together they devoted a few days to analyzing exhibits and conferring with staff at the Field Museum of Natural History. They also discussed the revised Yellowstone plans, which the park naturalist found hard to accept. By mid-January Russell was back at his post in Yosemite faced with his own duties as park naturalist again,

but not for long. His exposure to at least 38 museums of various kinds and to many of the best minds in the profession had other ends in view.

Behind Russell's carefully plotted itinerary lay Bumpus's concern about a problem he saw coming. If the experiments of the AAM committee achieved their objective, they would persuade Congress to follow the example of the Laura Spelman Rockefeller Memorial. Congress would appropriate funds to build additional museums where needed throughout the national parks and monuments. This in turn would require the Park Service to undertake extensive museum planning, development, and operation. Bumpus raised a key question: "Will it be possible so to encourage members of the permanent educational staff that they, without special training, will collect, prepare, label, and exhibit museum material in such a way as creditably to meet the special requirements of the sightseer?" He had seen enough reluctance and amateurism to create doubts. So he went on to suggest a solution: "Much will be accomplished if within the service a competent technical staff can be organized."<sup>37</sup> With these words he planted the seed of what would eventually become a centralized professional museum staff to serve the park system as a whole.

Evidently in response to his prodding, the Service promoted Russell as of July 1929 to a new position of field naturalist specializing in museum work. His duties primarily involved exhibit planning and preparation for the parks, and he used the subtitle of museum advisor.<sup>38</sup> The position fell logically into Ansel Hall's Field Division of Education at Berkeley, but initially the ties were loose. Russell received his assignments largely from Bumpus, his travel orders from the director's office in Washington, and his pay from the Service's field headquarters in San Francisco. Hall asked for and received monthly reports of his work.

The summer of 1929 at Yellowstone found Herb Maier completing construction of the Madison Junction museum building and getting a good start on the one at Norris Geyser Basin. The Old Faithful Museum, built during the 1928 season, was open when Russell joined Bumpus there in July. It still lacked quite a few of the planned exhibits. More significantly, some of those already installed failed to satisfy Bumpus. Russell's first assignment therefore involved exhibit preparation to upgrade and complete this museum. He personally engaged in various practical tasks from collecting and processing specimens to lettering labels. A distasteful chore was to cast copies of the 56-square-foot Yellowstone relief model so Old Faithful and the other branch museums would each have one. By the end of July the museum was "functioning splendidly" and the director could report it ""successful beyond all expectations."<sup>39</sup>

During the remainder of the summer Russell struggled with exhibit plans for the two new museums. He found them difficult. His background prompted him to focus on some ecological exhibits at Norris, treating a

secondary aspect of that site's story; at that time he appeared not to recognize Norris as primarily a geological site museum.<sup>40</sup>

That December Bumpus called him east for the second time. Completing the Norris exhibit plan, his principal task on this trip, demanded that he become well grounded in geology. Bumpus had two ends in view. First, of course, the museum needed to tell its story with clarity and accuracy. He also hoped to counteract tensions that had developed within the Committee on Educational Problems in National Parks, particularly between Merriam and himself. The trouble thus involved the AAM committee as well. As Russell expressed it, "I am to secure a practical knowledge of petrology, mineralogy, and historical geology that will put me in a position to talk to Merriam, Day, Matthes, and the rest of the geologists who disapprove of a biologist attempting to plan park museum exhibits."<sup>41</sup> For almost two months he studied under selected tutors in the geology departments at Brown University and Harvard. He also worked on exhibit plans, drafted label copy, and dickered for specimens that would be needed at Yellowstone. In Washington during March he consulted with geologists at the Carnegie Geophysical Laboratory, the Geological Survey, and the National Museum and completed an acceptable exhibit scheme. Back at the Buffalo Museum Bumpus reviewed the Norris plans favorably and Maier supplied detailed dimensions of the exhibit space.<sup>42</sup>

The park's well-nurtured museum program operated in high gear during the 1930 season. Russell had help in carrying out the exhibit plans from the taxidermist, the map letterer, a new general assistant, and especially Dr. and Mrs. Erwin J. Raisz. The latter couple formed an exceptional team combining sound geological understanding with high artistic skills. The park naturalist staff also lent a hand. As a result the Norris Museum opened on July 5, although still lacking a few exhibits, and the Madison Junction Museum on July 11. Reactions to the Norris installation were gratifying. Ordinary park visitors evidently liked it. So did more critical viewers including John D. Rockefeller, Jr., Director Albright, and visiting geologists from the Geophysical Laboratory and Princeton University. In contrast, the Madison Junction Museum proved unsatisfactory. Its scope was too narrow. Bumpus was on hand and work started at once to add more exhibits carrying Yellowstone history up through the Hayden Expedition of 1871.<sup>43</sup>

Exhibit work did not stop there. Apparently the dream of a new central museum at Mammoth Hot Springs was dead, but Bumpus was ready to see the existing headquarters museum in the old Army building revitalized. He personally worked on revising the exhibits in the front room. Russell and his crew made substantial progress on a second room that received new wiring, factory-built cases, and a set of exhibits about Yellowstone Indians and history as well as more geology. Development of this room led him to